1. Solve the modeling problem below, if possible.

   A new virus is spreading throughout the world. There were initially 8 many cases reported, but the number of confirmed cases has doubled every 3 days. How long will it be until there are at least 1000000 confirmed cases?

   A. About 14 days

   B. About 51 days

   C. About 36 days

   D. About 15 days

   E. There is not enough information to solve the problem.

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2. Solve the modeling problem below, if possible.

   A new virus is spreading throughout the world. There were initially 8 many cases reported, but the number of confirmed cases has doubled every 3 days. How long will it be until there are at least 1000000 confirmed cases?

   A. About 36 days

   B. About 51 days

   C. About 15 days

   D. About 14 days

   E. There is not enough information to solve the problem.

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3. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

   Pringles wants to add 34 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

   A. About 10 percent

B. About 3 percent

C. About 16 percent

D. About 17 percent

E. None of the above

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4. For the information provided below, construct a linear model that describes her total costs, C, as a function of the number of months, x she is at UF.

Aubrey is a college student going into her first year at UF. She will receive Bright Futures, which covers her tuition plus a $400 educational expense each year. Before college, Aubrey saved up $11000. She knows she will need to pay $700 in rent a month, $70 for food a week, and $40 in other weekly expenses.

A. $C(x) = 810$

B. $C(x) = 810x$

C. $C(x) = 1140$

D. $C(x) = 1140x$

E. None of the above.

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5. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 28 liter 34 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 14 percent and 41 percent solutions, what was the amount she used of the 14 percent solution?

A. $12.40 liters$

B. $7.26 liters$

C. $20.74 liters$

D. $14.00 liters$

E. There is not enough information to solve the problem.

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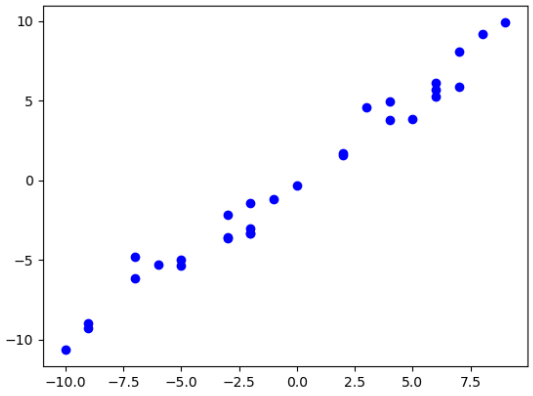
6. Determine the appropriate model for the graph of points below.



A. Linear model

B. Logarithmic model

C. Non-linear Power model

D. Exponential model

E. None of the above

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7. For the scenario below, model the rate of vibration (cm/s) of the string in terms of the length of the string. Then determine the variation constant k of the model (if possible). The constant should be in terms of cm and s.

The rate of vibration of a string under constant tension varies based on the type of string and the length of the string. The rate of vibration of string ω increases as the square length of the string decreases. For example, when string ω is 3 mm long, the rate of vibration is 25 cm/s.

A. $k = 2.78$

B. $k = 2.25$

C. $k = 277.78$

D. $k = 225.00$

E. None of the above.

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8. For the scenario below, use the model for the volume of a cylinder as $V = \pi r^2 h$.

Pringles wants to add 35 percent more chips to their cylinder cans and minimize the design change of their cans. They've decided that the best way to minimize the design change is to increase the radius and height by the same percentage. What should this increase be?

A. About 3 percent

B. About 18 percent

C. About 16 percent

D. About 11 percent

E. None of the above

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9. Solve the modeling problem below, if possible.

In CHM2045L, Brittany created a 22 liter 13 percent solution of chemical χ using two different solution percentages of chemical χ. When she went to write her lab report, she realized she forgot to write the amount of each solution she used! If she remembers she used 13 percent and 37 percent solutions, what was the amount she used of the 13 percent solution?

A. $11.00 liters$

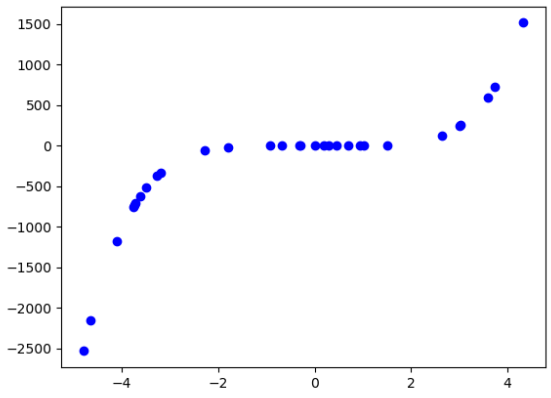
B. $2.56 liters$

C. $0.00 liters$

D. $22.00 liters$

E. There is not enough information to solve the problem.

10. Determine the appropriate model for the graph of points below.



A. Linear model

B. Non-linear Power model

C. Exponential model

D. Logarithmic model

E. None of the above